What is claimed is:

1. A method for achieving a target trim amount of a feature on a substrate in a chemical oxide removal process comprising:

performing a chemical oxide removal process using a process recipe including a first reactant, a second reactant, and a process pressure in order to acquire trim amount data as a function of a variable parameter, while maintaining at least one constant parameter constant, wherein said variable parameter is one of a first group of parameters including an amount of said first reactant, an amount of said second reactant, and a process pressure, and said at least one constant parameter different from said variable parameter is one of a second group of parameters including an amount of said first reactant, an amount of said second reactant, and a process pressure;

determining a relationship between said trim amount data and said variable parameter;

using said target trim amount and said relationship to determine a target value for said variable parameter;

chemically treating said feature on said substrate by exposing said substrate to said process recipe using said target value of said variable parameter and said at least one constant parameter; and

substantially removing said target trim amount from said feature.

2. The method of claim 1, wherein said performing said chemical oxide removal process using said process recipe includes a variable parameter selected from the group consisting of a partial pressure of a first reactant, a partial pressure of a second reactant, a process pressure, a mole fraction of said first reactant, and a mole fraction of said second reactant, and at least one constant parameter different from said variable parameter selected from the group consisting of said partial pressure of said first reactant, said partial pressure of said second reactant, said process pressure, said mole fraction of said first reactant, said mole fraction of said second reactant, a mass fraction of said first reactant to said second reactant, a mole ratio of said first reactant to said second reactant; a mass of said first reactant, a mass of said second

reactant, a mass flow rate of said first reactant, a mass flow rate of said second reactant, a number of moles of said first reactant, a number of moles of said second reactant, a molar flow rate of said first reactant, and a molar flow rate of said second reactant.

3. The method of claim 1, wherein said amount of said first reactant includes one of a partial pressure of said first reactant, a partial pressure of said second reactant, a process pressure, a mole fraction of said first reactant, and a mole fraction of said second reactant, and said at least one constant parameter different from said variable parameter is one of a second group of parameters including said partial pressure of said first reactant, said partial pressure of said second reactant, said process pressure, said mole fraction of said first reactant, said mole fraction of said second reactant, a mass fraction of said first reactant to said second reactant, a mole ratio of said first reactant to said second reactant, a mass of said first reactant, a mass of said second reactant, a mass flow rate of said first reactant, a mass flow rate of said second reactant, a number of moles of said first reactant, a number of moles of said second reactant, a molar flow rate of said first reactant, and a molar flow rate of said second reactant;

4. The method of claim 1, wherein said substantially removing of said trim amount from said feature comprises thermally treating said substrate by elevating the temperature of said substrate following said chemical treating.

5. The method of claim 1, wherein said substantially removing of said trim amount from said feature comprises rinsing said substrate in a water solution following said chemical treating.

6. The method of claim 1, wherein said performing of said chemical oxide removal process includes using a process recipe including HF gas and NH_3 gas.

7. The method of claim 2, wherein said performing of said chemical oxide removal process further includes using said process recipe having an inert gas, wherein said first group of parameters further includes a partial pressure of said inert gas, and said second group of parameters further includes a partial pressure of said inert gas, a mole fraction of said inert gas, a mass of said inert gas, a mass flow rate of said inert gas, a number of moles of said inert gas, a molar flow rate of said inert gas, a mass ratio of said first reactant to said inert gas, a mass ratio of said second reactant to said inert gas, a mole ratio of said first reactant to said inert gas, and a mole ratio of said second reactant to said inert gas.

7. The method of claim 6, wherein said performing of said chemical oxide removal process includes using a process recipe including HF gas, NH_3 gas, and Ar gas.

8. The method of claim 7, wherein said acquiring of said trim data as a function of said variable parameter for said constant parameter includes acquiring said trim data as a function of a partial pressure of HF for a constant value of a mass ratio of HF to NH_3, and said process pressure.

9. The method of claim 1, wherein said chemically treating of said feature includes chemically treating a silicon oxide feature.

10. The method of claim 1, wherein said determining of said relationship includes at least one of interpolation, extrapolation, and data fitting.

11. The method of claim 10, wherein said data fitting includes at least one of polynomial fitting, exponential fitting, and power law fitting.

12. A method for performing a chemical oxide removal process using a process recipe to achieve a target trim amount of a feature on a substrate comprising:

determining a relationship between trim amount data and a partial pressure of a gas specie for said process recipe;

setting said target trim amount;

using said relationship and said target trim amount to determine a target value of said partial pressure of said gas specie;

adjusting said process recipe according to said target value for said partial pressure of said gas specie; and

chemically treating said feature on said substrate by exposing said substrate to said process recipe.

13. A system for achieving a target trim amount on a substrate in a chemical oxide removal process comprising:

a chemical treatment system for altering exposed surface layers on said substrate by exposing said substrate to a process recipe having an amount of a first process gas, an amount of a second process gas, an amount of an optional inert gas, and a process pressure for an exposure time;

a thermal treatment system for thermally treating said chemically altered surface layers on said substrate; and

a controller coupled to said chemical treatment system and configured to use a relationship between trim amount and a variable parameter for one or more constant parameters, wherein said variable parameter is one of a first group of parameters including said amount of said first reactant, said amount of said second reactant, said amount of said optional inert gas, and said process pressure, and said one or more constant parameters different from said variable parameter is one of a second group of parameters including said amount of said first reactant, said amount of said second reactant, said amount of said optional inert gas, and said process pressure.

14. The system of claim 12, wherein said variable parameter is selected from the group consisting of a partial pressure of said first reactant, a partial pressure of said second reactant, a process pressure of said first reactant, said second reactant, and said optional inert gas, a mole fraction of said first reactant, and a mole fraction of said second reactant, and said one or more constant parameters are selected from the group consisting of said

partial pressure of said first reactant, said partial pressure of said second reactant, said process pressure of said first reactant, said second reactant, and said optional inert gas, said mole fraction of said first reactant, said mole fraction of said second reactant, a mass fraction of said first reactant to said second reactant, a mole ratio of said first reactant to said second reactant; a mass of said first reactant, a mass of said second reactant, a mass flow rate of said first reactant, a mass flow rate of said second reactant, a number of moles of said first reactant, a number of moles of said second reactant, a molar flow rate of said first reactant, and a molar flow rate of said second reactant.